MITSUBISHI ELECTRIC

MITSUBISHI DLP™ PROJECTOR
HOME THEATER PROJECTION SYSTEM

HC3000 / HC910

PICTURE BY
DLP™
A TEXAS INSTRUMENTS TECHNOLOGY

Brilliance, in jet black

Dark and black images,

reproduced with greater depth,

and richer texture.

Contrast that produces subtle gradation, woven of light and shadow.

High-definition quality, fostering sensations of texture in screen-projected images.

The beauty of images, determined by the capacity to reproduce rich black tones.

Adoption of a new DMD that radically curbs diffuse reflection of light,

and a newly developed panel driver for handsome gradation.

The result is dramatic contrast of 4000:1,

and overpowering image expression challenging the high-end model realm.

Picture quality real, and fine in detail.

The reproduction capacity, and the devotion to black images,

will transform the room into truly lavish theater space.

Illuminated remote control unit

1000 lm
HOME THEATER PROJECTOR
PICTURE BY DLP™ A TEXAS INSTRUMENTS TECHNOLOGY
HC3000

HD ready | HDMI™ HIGH-DEFINITION MULTIMEDIA INTERFACE

■ Rich visual reproduction, accentuating the dark, black images

### High contrast performance of 4000:1

Complementing the new DMD, high-detail all-glass lens and newly developed panel drive combine to realize profuse gradation expression, weighted to rich dark and black images. The iris lens aperture further enhances the package, elevating high contrast performance of 4000:1.

2000:1   4000:1   All-Glass Lens
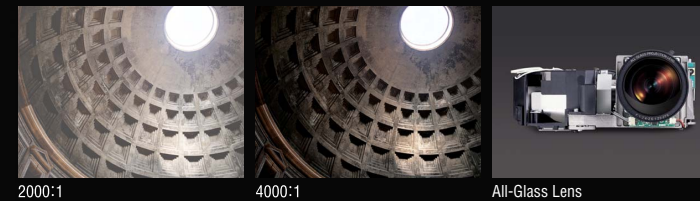
■ Key to crisp, clear images, and high resolution

Mounted with the brand new 0.65-type WXGA panel

Compatible with three resolution modes: 1280×720 (HD), Real XGA1024×768, and WXGA1280×768 (15:9). Resolution levels may also be changed, depending on the hardware in use.

Digital Micro-Mirror Device   Pixel Composition Map
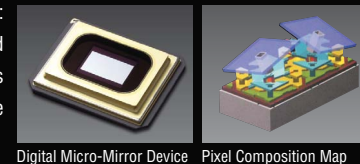
■ Evolving the optical engine to new heights

Motor-driven iris lens with 2-level switching

Equipped with motor-driven variable lens aperture, for optical contrast adjustments ensuring optimal incident light supply to the DMD chip. Two-level remote control switching further simplifies the user-friendly function.

Fully open iris (2700:1)   Stopped down iris (4000:1)

<Maximizing film sources> Combining functions, for selective use of high brightness and high picture quality modes, best accommodating the images being screened.

▮ Standard mode + iris full aperture (1000lm) + color wheel (RGB RGB)

Sparkling brightness of 1000lm, combining iris lens open contrast of 2700:1 with a new color wheel. Enhanced viewing of brilliant images in brightly lit rooms – especially spectacular for sporting events and other television viewing.

▮ Low-mode iris aperture (450lm)

Brightness is controlled by lowering the iris lens aperture, delivering 4000:1 contrast. The result is highly enhanced black gradation, nearing the caliber of high-end models. Engineered to excel in movie viewing by raising the weight of dark, black images.

User gamma correction

In addition to the three modes of Sports, Video and Cinema, for movie viewing, this projector addresses demands for "higher black level reproduction," "brighter medium contrast" and "toned down highlights" unachievable with conventional brightness functions. The key is independent operation of black, medium, and white gradation, for subtle picture change and adjustment.
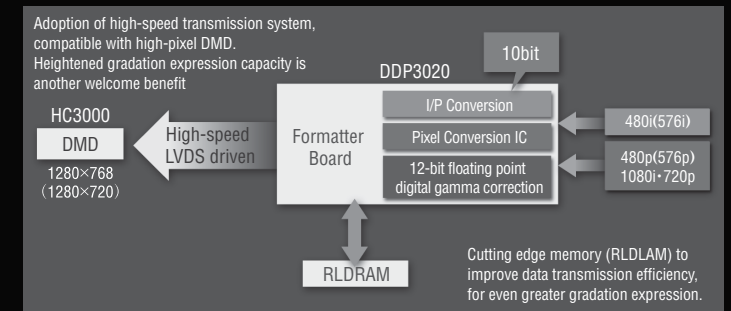
5-Stage Adjustment
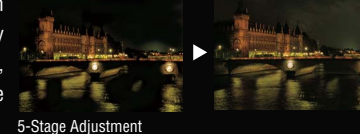
■ Fine-detail gradation reproduction, closing in on the high-end realm

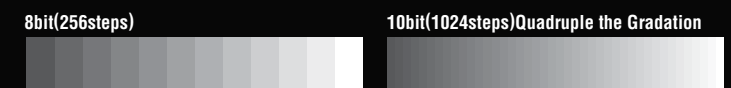### Equipped with newly developed panel driver (DDP3020)

Formatter board mounted with integrated full 10-bit processing I/P conversion and scaler and 12-bit floating point digital gamma corrector. This combination delivers some quadruple the gradation of the conventional 8-bit version; portraying flesh tones in smooth and flowing images.

High-speed LVDS (low-voltage differential signal) driven

Equipped with high-speed memory (RLDRAM) that raises data transmission efficiency and high-speed LVDS drive, for high-caliber gradation expression challenging the high-end model range.

Adoption of high-speed transmission system, compatible with high-pixel DMD. Heightened gradation expression capacity is another welcome benefit

HC3000 DMD 1280×768 (1280×720) — High-speed LVDS driven — Formatter Board — DDP3020 — I/P Conversion — Pixel Conversion IC — 12-bit floating point digital gamma correction — 10bit — 480i(576i) — 480p(576p) 1080i·720p — RLDRAM — Cutting edge memory (RLDLAM) to improve data transmission efficiency, for even greater gradation expression.

Data transmission flow

8bit(256steps)   10bit(1024steps)Quadruple the Gradation

Equipped with 10-bit I/P conversion circuit to eliminate pesky jaggies

Mounting with full 10-bit processing I/P conversion circuits, forging dramatic improvements in noise. Rids the screen of diagonal jaggies, reproducing smooth and striking images.

DDP2000   DDP3020

■ BrilliantColor™

Backed by new color processing algorithms and system level color signal picture quality enhancement processing, images of neutral tints (heavily present in videos and natural scenery) are reproduced in bright and vibrant tones.

■ Visual signals forwarded with a single cable

HDMI terminal

Combined with DVD players and other digital visual equipment, realizing full digital transmission that delivers entertainment free of picture deterioration from AD/DA conversion.

■ Visual position and shutter function, to enjoy movies at the optimum position each time

Bundled with shutter function to eliminate unwanted vertical image domains (black bands, etc.) on cinemascope screens, and image position function to move the screen up and down. Creating the maximum environment, for movie pleasure.

< Example of squeeze cinemascope screen >

Upward Position Movement   Downward Position Movement

■ Over-scan volume adjustment

A feature making it possible to adjust the over-scan rate of images contained in DVD and other media from 90% to 100%, moving at 1% increments. (when connected to HDMI and component)

■ Trigger terminal

Screen trigger links the projector power source switch and motor-driven screen up/down function. Commence screenings at the touch of a finger.

■ Vertical / horizontal trapezoidal distortion correction

Use of digital trapezoidal distortion correction enables screen distortion to be corrected ±40 steps lengthwise and ±25 steps crosswise.

The rich black tones, are brilliant.

Sheer beauty, soaring to new heights.

Illuminated remote control unit

PICTURE BY
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HOME THEATER PROJECTOR
HC910

■ Superb contrast to 4000:1

Equipped with an optical engine mounted with high-detail all-glass lens, forging dramatic improvements in contrast. Motor-driven iris function lens aperture further enhances the package, elevating contrast to the stellar level of 4000:1.

All-Glass Lens

2000:1   4000:1

■ Dark chip 2-DMD, for high resolution of 1024×576

This projector features a DMD chip (wide panel) with stellar 1024×576 dot resolution. Mirror inclination angle of ±12 degrees effectively cuts black diffused light. Besides this, the rear structure of the mirror uses dark metal to block diffused reflection and stray light, setting the scene for fine and rich gradation.

< Digital Micro-Mirror Device >

< DMD Pixel Composition Map >
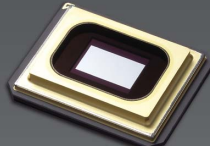
Mirror
Torsion hinge
Yoke
Landing chip
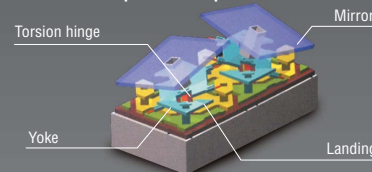
■ Further evolving the motor-driven iris lens with 2-level switching

Motor-driven variable lens aperture equipped, for optical contrast adjustments that ensure optimal incident light supply to the DMD chip. Two-level remote control switching further streamlines use of selected brightness levels.
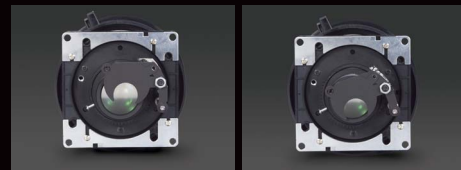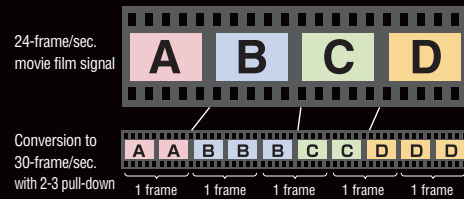
Fully open iris(2700:1)   Stopped down iris(4000:1)

■ Mounted with 2-3 pull-down, for classy reproduction of movie software

Movie film and other media recorded at 24 frames per second are converted to 30-frame/sec. images, the same as TV broadcasts. The bottom line is projection of high-detail images closing in on the fine texture portrayed with film.

24-frame/sec. movie film signal

A B C D

Conversion to 30-frame/sec. with 2-3 pull-down

A A B B B C C D D D

1 frame 1 frame 1 frame 1 frame 1 frame

■ Equipped with high picture quality reproduction circuit 3D Y/C separation, 10-bit color decoder

Image color and brightness signals are separated with superb accuracy, using 3D processing. Cross color (rainbow pattern noise) and dot interference (dotted noise) are effectively curbed, while further use of the 10-bit processing color decoder reproduces images with even greater clarity.

Without 10-bit 3D Y/C separation   With 10-bit 3D Y/C separation

■ New color wheel with true color reproduction and handsome brightness

White has been added to the conventional color wheel (made up of six color parts), boosting brightness to an outstanding 1000lm. A special coating is also used to raise the reproduction of reds - a vital color group for the sake of image reproduction.

New Color Wheel

■ Top picture quality even in brightly light living rooms, producing high luminance of 1000lm

This projector produces outstanding brightness of 1000lm. Even in living rooms or other brightly lit spaces, comparatively flat video software or sporting events can also be savored through top-quality images.

■ Trapezoidal distortion correction

The digital trapezoidal distortion correction function enables correction of picture distortion at ±20 steps.

Lavish functions,
To fully savor the joys of home theater.
HC3000 / HC910

Note:Photo shows the HC3000.

■ Illuminated remote control, easy to use in darker rooms too

The system includes an illuminated remote control panel, with the buttons lighting up for easy use even in darkened rooms. Picture quality is also corrected also by remote, enabling direct operation.

Note: Photo shows the HC3000 remote control.

■ 25dBA low noise performance

Hushed low noise level of 25dBA realized with use of a low-noise fan, color wheel holder configuration and lamp fin dimensions.

■ Center lens and front exhaust, for trouble-free installation and viewing

Adopted for redoubled ease in focusing the projected image at the center of the screen is a center design that positions the lens at the center of the unit. And with hot air released from the front-mounted exhaust port, there is no difficulty in viewing from the side or behind the projector.

Projection Calculation

■ HC910 (with screen aspect ratio of 16:9)

Screen size			Hd(cm)	Projection distance	
Diagonal (type designation)	W:width (cm)	H:height (cm)		Lw: Without magnification(m)	Lt: With max. magnification(m)
40	89	50	16	1.4	1.7
60	133	75	24	2.1	2.6
70	155	87	28	2.5	3.0
80	177	100	32	2.9	3.5
90	199	112	36	3.2	3.9
100	221	125	40	3.6	4.4
110	244	137	45	4.0	4.8
120	266	149	49	4.3	5.2
150	332	187	61	5.4	6.6
275	609	342	111	10.0	–

■ HC910 (with screen aspect ratio of 4:3)

Screen size(4:3 aspect ratio)			Projected image size(16:9 aspect ratio)			D(cm)	Hd(cm)	Projection distance	
Diagonal (type designation)	W:width (cm)	H:height (cm)	Diagonal (type designation)	W:width (cm)	H:height (cm)			Lw: Without magnification (m)	Lt: With max. magnification (m)
40	81	61	37	81	46	8	15	1.3	1.6
60	122	91	55	122	69	11	22	2.0	2.4
70	142	107	64	142	80	13	26	2.3	2.8
80	163	122	73	163	91	15	30	2.6	3.2
90	183	137	83	183	103	17	33	3.0	3.6
100	203	152	92	203	114	19	37	3.3	4.0
110	224	168	101	224	126	21	41	3.6	4.4
120	244	183	110	244	137	23	45	4.0	4.8
150	305	229	138	305	171	29	56	5.0	6.0
300	610	457	275	610	343	57	111	10.0	–

■ HC3000 (with screen aspect ratio of 16:9)

Screen size			Hd(cm)	Projection distance	
Diagonal (type designation)	W:width (cm)	H:height (cm)		Lw: Without magnification(m)	Lt: With max. magnification(m)
40	89	50	17	1.4	1.7
60	133	75	25	2.2	2.6
70	155	87	29	2.5	3.1
80	177	100	33	2.9	3.5
90	199	112	38	3.3	4.0
100	221	125	42	3.6	4.4
110	244	137	46	4.0	4.9
120	266	149	50	4.4	5.3
150	332	187	63	5.5	6.6
275	609	342	115	10.1	–

■ HC3000 (with screen aspect ratio of 4:3)

Screen size(4:3 aspect ratio)			Projected image size(16:9 aspect ratio)			D(cm)	Hd(cm)	Projection distance	
Diagonal (type designation)	W:width (cm)	H:height (cm)	Diagonal (type designation)	W:width (cm)	H:height (cm)			Lw: Without magnification (m)	Lt: With max. magnification (m)
40	81	61	37	81	46	8	15	1.3	1.6
60	122	91	55	122	69	11	23	2.0	2.4
70	142	107	64	142	80	13	27	2.3	2.8
80	163	122	73	163	91	15	31	2.7	3.2
90	183	137	83	183	103	17	35	3.0	3.6
100	203	152	92	203	114	19	38	3.3	4.0
110	224	168	101	224	126	21	42	3.7	4.5
120	244	183	110	244	137	23	46	4.0	4.9
150	305	229	138	305	171	29	58	5.0	6.1
300	610	457	275	610	343	57	115	10.1	–

Screen size(4:3 aspect ratio)			Projected image size (WXGA15:9 aspect ratio)			D(cm)	Hd(cm)	Projection distance	
Diagonal (type designation)	W:width (cm)	H:height (cm)	Diagonal (type designation)	W:width (cm)	H:height (cm)			Lw: Without magnification (m)	Lt: With max. magnification (m)
40	81	61	37	81	49	6	14	1.3	1.6
60	122	91	56	122	73	9	21	2.0	2.4
70	142	107	65	142	85	11	24	2.3	2.8
80	163	122	75	163	98	12	28	2.7	3.2
90	183	137	84	183	110	14	31	3.0	3.6
100	203	152	93	203	122	15	35	3.3	4.0
110	224	168	103	224	134	17	38	3.7	4.5
120	244	183	112	244	146	18	42	4.0	4.9
150	305	229	140	305	183	23	52	5.0	6.1
300	610	457	280	610	366	46	104	10.1	–

Projection Installation
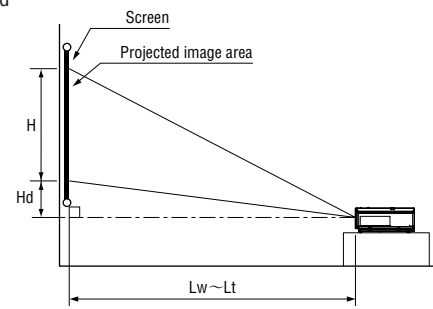
Floor mounted

Dimensional diagram

Center of lens

61
205   25.2

Unit (mm)

Ceiling mounted

Lw～Lt

Note: E size
Ceiling-mount adaptor BR-HC900JS
Use of ceiling-mount fitting base
BR-1: 16.7cm

Ceiling-mount adaptor BR-HC900JS
Ceiling-mount fitting base BR-1
Use of high ceiling pole
BR-1P: 46.7 - 96.7cm

Projected image area
Screen

Dimensional diagram
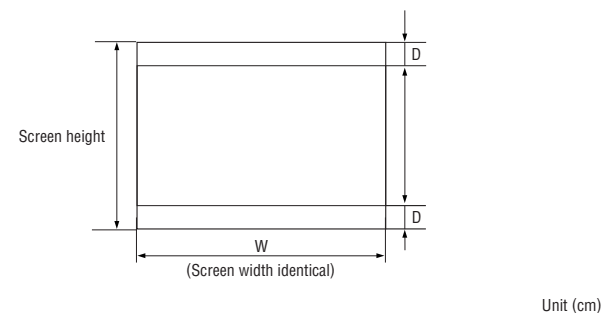
124
Vertical angle adjustment screws
(two points on either side)
5°
5°
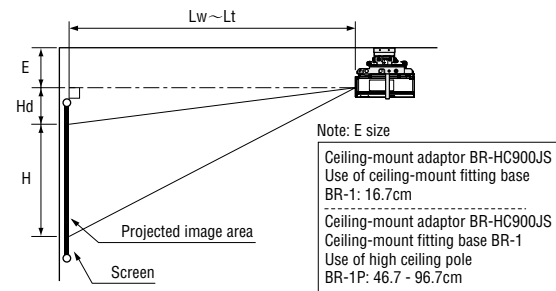
Unit (mm)
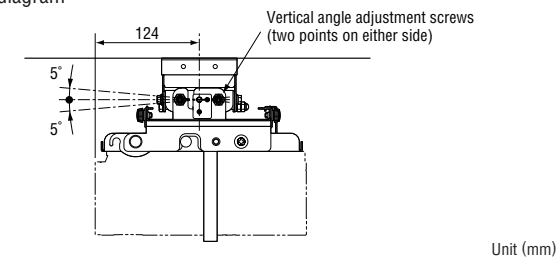
Relationship between 16:9 screen and projected images

W
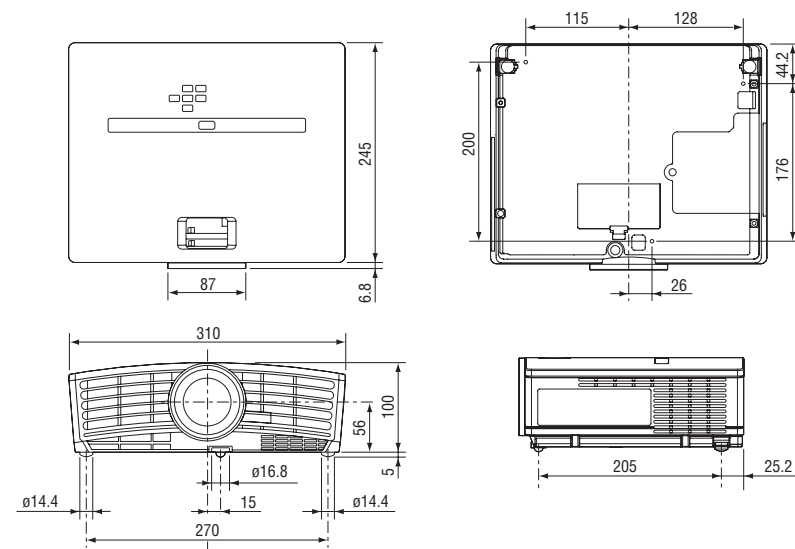H
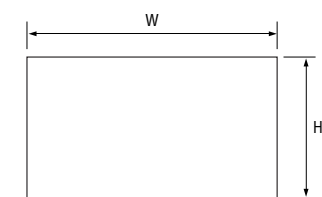
Relationship between 4:3 screen and projected images

D
D
W
Screen height
(Screen width identical)

Unit (cm)

Specifications

Model			HC3000	HC910
Projection system			DLP™ system	DLP™ system
Panel specs	Panel size		0.65 DMD, aspect ratio 15:9	0.65 DMD, aspect ratio 16:9
	Number of pixels		1280 × 768	1024 × 576
	Drive system		DMD reflection system	DMD reflection system
	Array		Stripe pattern	Stripe pattern
Optical specs	Lens	Zoom/focus operation	Manual operation	Manual operation
		f (mm)	23～27.6	23～27.6
	Light source lamp		200W	200W
	Optical system		Time-division color separation/composition system	Time-division color separation/composition system
Picture size (inches)			40～275	40～275
Images	Brightness (lm)		1000	1000
	Contrast ratio		4000:1 (full white/full black)	4000:1 (full white/full black)
	Resolution	PC input	VGA(640×480)-SXGA(1280×1024) (compressed)	VGA(640×480) -SXGA(1280×1024) (compressed)
	Scanning frequency	Horizontal (kHz)	15～80	15～80
		Vertical (Hz)	50～85	50～85
Input signal system	Video		NTSC, NTSC4.43, PAL (including PAL-M,N), SECAM, PAL-60, HDTV (480i/p, 576i/p, 1081i, 720p)	NTSC, NTSC4.43 (including PAL-M,N), SECAM, PAL-60, 480i/p, 576i/p, 1081i (1081i, 1250i 50Hz cannot be used)
	PC		PC/AT compatible machines, MAC, PC98	PC/AT compatible machines, MAC, PC98
Input	Video	Analog RGB	Mini D-SUB15 pin	1 terminal	1 terminal
		Digital RGB	DVI	HDMI 1 terminal	DVI-D 1 terminal (HDCP)
		Composite	RCA terminal	1 terminal	1 terminal
		S	S terminal	1 terminal	1 terminal
		Component	RCA terminal	1 RCA terminal (Component can be also input to D-SUB)	1 RCA terminal (Component can be also input to D-SUB)
	Serial/RS-232C standard		1 terminal (8 pins)	1 terminal (8 pins)
Functions	Function/other	Gamma mode	3 patterns + 2 users	3 patterns
	Trapezoidal distortion correction	Vertical keystone	±40 steps (1 step = approx. 1 time)	±20 steps
		Horizontal keystone	±25 steps (1 step = approx. 1 time)	–
	Power supply voltage		AC100-240V 50/60Hz	AC100-240V 50/60Hz
	Power consumption (W)		280 (8W at standby)	280 (7W at standby)
	Weight (kg)		3.0	3.0
	Main unit dimentions	Width (mm)	310	310
		Depth (mm)	245	245
		Height (mm)	100	100
	Fan noise		25dBA(Lamp Low Mode)	25dBA(Lamp Low Mode)
Other	Supplied accessories		Power source cord (2.9m), power source plug adaptor, remote control unit, AAA-size batteries (×2), RGB signal cable, RS-232C cable, lens cap (attached to main unit), intake filter	Power source cord (2.9m), power source plug adaptor, remote control unit, AAA-size batteries (×2), RGB signal cable, RS-232C cable, lens cap (attached to main unit), intake filter

Note: For HC3000 zoom function, Zoom1/Zoom2 operates only on 480p and 576p, and does not function on 480i and 576i.

External size diagram (HC3000/HC910)

115   128
44.2
245   200   176
87   6.8   26
310
56   100
ø16.8   5
ø14.4   15   ø14.4   205   25.2
270

(Unit: mm)

Rear terminals

HC3000

HC910

Options

Conversion plug	Cinema filter	Ceiling-mount fittings		Elevated-position installation fitting
VLT-HC910LP	CF1	BR-1 (base unit)	BR-HC900JS	BR-H900
			Note: Used in combination with the base unit.	This part is utilized to install the projector unit, placed upside down, at elevated positions within the room.

MITSUBISHI ELECTRIC CORPORATION

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To find out more about HC3000/HC910 and our projectors, visit us at

Global.MitsubishiElectric.com/projectors/

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